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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,876

12/29/2005

Kenji Ishii

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WASHINGTON, DC 20006-1021

EXAMINER

HEINCER, LIAM J

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/562,876	Applicant(s) ISHII ET AL.	
	Examiner Liam J. Heincer	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Terminal Disclaimer***

The terminal disclaimer filed on March 31 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 6,689,920 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishii et al. (6,689,920).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

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Considering Claim 1: Ishii et al. teaches a process for producing a bi-functional phenylene ether oligomer compound comprising oxidatively polymerizing (2:34-39) a biphenol of instant formula (2) (formula 2) with a monovalent phenol of instant formula (3) (Formula 6) in the presence of a copper containing catalyst (7:43-45) and a mixture of N,N'-di-t-butylethylenediamine/a secondary amine with tertiary alkyl groups and n-butyldimethylamine/a tertiary amine (Example 3).

Considering Claim 2: Ishii et al. teaches the amine as being charged in an amount of 20 to 70% by weight and the residual amine being added during the reaction (9:6-22).

Considering Claim 3: Ishii et al. teaches charging all/100% of the copper catalyst into the reactor in advance (Example 3).

Considering Claim 4: Ishii et al. teaches the monovalent phenol as being 2,6-dimethylphenol or a mixture of 2,6-dimethylphenol and 2,3,6-trimethylphenol (7:11-20).

Considering Claim 5: Ishii et al. teaches the ratio of bivalent phenol and monovalent phenol as being from 1:1 to 1:15 (8:25-39).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any

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inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsui et al. (US Pat. 6,521,735) in view of Amentani et al. (JP 2003-012796). Note a machine translation is being used for JP 2003-012796 and all references will be towards this translation.

Considering Claims 1 and 4: Mitsui et al. teaches a process for the production of polyphenylene ether comprising oxidatively polymerizing (2:28-30) a monovalent phenol such as 2,6 dimethylphenol (4:15-29) in the presence of a mixture (Example 1) of a secondary diamine such as N,N'-di-t-butylethylenediamine (6:62-63) and a tertiary monoamine (64-7:8).

Mitsui et al. does not teach the polymerizing the monovalent phenol in the presence of a divalent phenol. However, Amentani et al. teaches oxidatively polymerizing (¶0005) 2,2',3,3',5,5'-hexamethyl-(1,1' biphenyl)-4,4'-diol (¶0007) and 2,6-dimethylphenol (¶0009). Mitsui et al. and Amentani et al. are combinable as they are concerned with the same field of endeavor, namely polymerizing phenols in the presence of copper catalysts and amines. It would have been obvious to a person having ordinary skill in the art at the time of invention to have added the divalent phenol to the reaction mixture of Mitsui et al. as in Amentani et al., and the motivation to do so would have been, as Amentani et al. suggests, to provide a bifunctional phenylene ether (¶0005).

Considering Claim 2: Mitsui et al. teaches charging 75% of the amine to the reaction vessel, then adding the remaining 25% during the polymerization (Examples 2 and 3).

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Mitsui et al. does not teach the amine being charged in the claimed amount. However, it is well known in the art to optimize result effective variables such as concentration. It would have been obvious to a person having ordinary skill in the art at the time of invention to have optimized the amount of amine to be charged in the reactor, and the motivation to do so would have been to control the reaction time and reproducibility. See MPEP § 2144.05.

Considering Claim 3: Mitsui et al. teaches charging 100 percent of the catalyst into the reaction mixture (Example 1).

Considering Claim 5: Mitsui et al. does not teach the ratio of bivalent phenol to monovalent phenol being from 1:1 to 1:15. However, Amentani et al. teaches a ratio of the bivalent phenol to monovalent phenol of 1:1 to 1:10 (¶0015). It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the ratio of bivalent phenol to monovalent phenol from Amentani et al. in the process of Mitsui et al., and the motivation to do so would have been, as Amentani et al. suggests, to produce a polymer with molecular weight control and an absence of monovalent homopolymers (¶0015).

Response to Arguments

Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory

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period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LJH

June 5, 2008

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/James J. Seidleck/

Supervisory Patent Examiner, Art Unit 1796